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| 10/577,248      | 01/24/2007  | Carsten Heider       | CPB-MUL-38          | 4784             |

7590 03/23/2010  
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| EXAMINER |
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KERNS, KEVIN P

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| ART UNIT | PAPER NUMBER |
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1793

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03/23/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                      |  |
|------------------------------|--------------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/577,248 | <b>Applicant(s)</b><br>HEIDER ET AL. |  |
|                              | <b>Examiner</b><br>Kevin P. Kerns    | <b>Art Unit</b><br>1793              |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2009 and 01 February 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 1-4 and 9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-8 and 10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 December 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Election/Restrictions***

1. This application contains claims 1-4 and 9 drawn to an invention nonelected with traverse. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 5, 7, 8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bunker et al. (US 6,279,222) in view of Cole et al. (GB 2 299 382).

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Regarding independent claim 5, Bunker et al. disclose the manufacture of brake pads defining a lining support plate (abstract; column 1, lines 55-67; column 2, lines 1-30 and 52-67; column 3, line 1 through column 5, line 9; and Figures 1-7), in which the lining support plate includes a cast metal base plate (back plate 12 of Figure 1) made from cast iron (column 2, lines 59-60; and Figure 1) and defining a support surface (upper surface 12a) to receive a friction lining material (block 14 of friction material), wherein retaining elements, or pins (projections 28 of Figures 1 and 3; and column 3, lines 3-15) are cast into the base plate 12 during production, such that a second portion of the pins 28 projects out of the support surface 12a of the base plate 12 (column 2, lines 52-67; column 3, lines 1-38; and Figures 1 and 3).

Bunker et al. do not disclose that the retaining elements are individual (and integral) pins that have respective first portions that would protrude into the base plate.

However, GB 2 299 382 discloses a backplate for friction material (abstract; page 2, line 5 through the end of page 4; and Figure 1), in which the backplate 10 (typically cast from iron – see abstract) includes a friction material-receiving surface 14 and a pattern of projections 12 (pins) extending therefrom, such that the projections/pins 12 are individual retaining (keying) elements that are cast integrally with the remainder of the backplate 10 (page 2, 1<sup>st</sup> three full paragraphs; page 3, last paragraph; page 4, 1<sup>st</sup> paragraph; and Figure 1). Since these projections/pins are cast integrally with the remainder of the backplate (as opposed to not welded, adhesively bonded etc.), then localized melting between the surfaces of the (pyramidal) bases of the projections/pins 12 and the surface of the backplate 10 (of which alternatively could be made from an

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even lower melting metal, including aluminum, rather than iron) would effect a metallurgical/diffusion bond therebetween, thus resulting in individual (and integral) “casting-in” of the first (base) portions of the retaining elements (projections 12) into the base plate, and advantageously obtaining strong metallurgical/diffusion bonds to achieve an improved keying process (“casting-in” of projections integrally) without any additional complex manufacturing steps (page 2, 1<sup>st</sup> three full paragraphs).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the manufacture of brake pads defining a lining support plate of cast iron, as disclosed by Bunker et al., by using the retaining elements that are individual (and integral) pins that have respective first portions that would protrude into the base plate, as taught/suggested by GB 2 299 382, in order to obtain strong metallurgical/diffusion bonds to achieve an improved keying process (“casting-in” of projections integrally) without any additional complex manufacturing steps (GB 2 299 382; page 2, 1<sup>st</sup> three full paragraphs).

Regarding claims 7 and 8, Bunker et al. disclose that the pins (projections 28) that are cast into and project out of the base plate 12 are contoured and define undercuts, as the pins 28 bow sideways and overhang, thus forming angled regions over respective undercuts (column 3, lines 3-38; and Figures 1 and 3).

Regarding claim 10, Bunker et al. disclose that the friction lining material (block 14 of friction material) includes an organic binder pressed onto the support surface 12a of the base plate 12 (column 4, lines 36-53; and Figures 1 and 3).

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5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bunker et al. (US 6,279,222) in view of Cole et al. (GB 2 299 382), as applied to claim 5 above, and further in view of JP 9-111393.

Bunker et al. (in view of GB 2 299 382) disclose and/or suggest the features of independent claim 5. Neither Bunker et al. nor GB 2 299 382 discloses that the cast iron of the base plate includes vermicular graphite.

However, JP 9-111393 discloses a cast iron disk brake rotor material (abstract), in which the cast iron includes a compact vermicular graphite that is advantageous for providing excellent heat and wear resistance (abstract).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the manufacture of brake pads defining a lining support plate of cast iron, as disclosed by Bunker et al., by using the retaining elements that are individual (and integral) pins that have respective first portions that would protrude into the base plate, as taught/suggested by GB 2 299 382, in order to obtain strong metallurgical/diffusion bonds to achieve an improved keying process ("casting-in" of projections integrally) without any additional complex manufacturing steps, and by further using cast iron comprising vermicular graphite, as taught by JP 9-111393, in order to provide excellent heat and wear resistance (JP 9-111393; abstract).

### ***Response to Arguments***

6. The examiner acknowledges the applicants' amendment and replacement drawing sheets received by the USPTO on December 17, 2009, as well as the updated

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amendments to the claims received by the USPTO on February 1, 2010 in response to the notice of non-compliant amendment letter mailed on January 28, 2010. The amendments and replacement drawing sheets of December 17, 2009 overcome all prior objections to the drawings, abstract, and specification. The amendments to independent claim 5 (in referring to the amendment dated February 1, 2010) overcome the prior 35 USC 112, 2<sup>nd</sup> paragraph rejections, as well as the prior 35 USC 102(b) rejections. However, the new limitations to independent claim 5 have necessitated new 35 USC 103(a) rejections when taken in view of the newly cited GB 2 299 382 reference. Claims 1-4 and 9 remain withdrawn from consideration, and the applicants are referred to above section 1 regarding the status of these non-elected claims. Claims 5-8 and 10 remain under consideration in the application.

7. Applicants' arguments with respect to claims 5-8 and 10 have been considered but are moot in view of the new ground(s) of rejection.

With regard to the applicants' remarks/arguments on pages 9-11 of the amendment dated December 17, 2009, it is noted that new grounds of rejection have been necessitated by the amendments, and the applicants are referred to the new portions in the 35 USC 103(a) rejections (sections 4 and 5) that address the new limitations.

***Conclusion***

8. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (571)272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin P. Kerns  
Primary Examiner  
Art Unit 1793

/Kevin P. Kerns/  
Primary Examiner, Art Unit 1793  
March 19, 2010